REMARKS

In response to the office action mailed may 15, 2007, applicant argues that the teaching of Steffens, Jr., et. al. "Patent Number 5,413,378" and that of Joseph A. Tabe "Serial Number 10/680,826," though both seems to solve some airbag problems through the use of sensors, Steffens, Jr., et. al. and Joseph A. Tabe both present two destine inventions differentiated by their approach and the degree of safety supplied to vehicular occupants. Weight sensors have been used in prior art to sense occupants weight, such as patent number 3,881,710 by Okubo, Massnobu, 1975. Though there are reasonable similarities between Okubo and Steffens, Jr., et al., None seems to address the elastic behavior affecting the sensors actual reading of the occupant's weight during collision. Both positioned the sensors on the cushioning surface of the seat, which is subjected to elastic reaction when a collision is enabled. Whereas Joseph A. Tabe uses a defined sensor "Load Cell" configured with an electrical resistance element "Strain gauge." The load cell and the strain gauge are positioned in a structural mounting position that eliminates all elastic reaction when a collision is enabled.

Because of the unique differences between the inventions of Steffens, Jr., et. al. and that of Joseph A. Tabe, applicant intents to argue the technologies contained in the inventions, rather than the language of the claims.

Regarding claim 65, Steffens, Jr., et. Al. teaches a system for controlling the inflation of an airbag by utilizing plurality position sensors, weight sensors, and seat belt payout to enable airbag deployment through matrix table configuration. In this teaching, sensor 70 and 36 are positioned on the seat cushion similar to Okubo "Pat Number 3,881,710." It could have been obvious for Steffens, Jr., et. al. to modify prior art of Okubo by incorporating plurality position sensors and seat belt pay out sensor in a four matrix table configuration to uniquely stand alone from Okubo's and/or prior art devices On/Off switch configuration.

Whereas, Joseph A. Tabe's invention is structurally defined and separated from both teachings through the advancement of a proper and unique installation of sensors to enable vehicular safety through a variable deployment system. In one embodiment of Tabe's invention, a load cell is positioned between the seat mounting structure and the floor of the vehicle. In other instance of Tabe's invention, the load cell is configured with a strain gauge to uniquely transform occupant's weight into electrical energy to enable variable deployment system rather than a four matrix table teachings of Steffens, Jr., et. al...

The present invention further teaches a load cell, which comprises of a corrosive resistant high alloy steel construction, with a weight measuring capacity of up to about 1000lbs. The load cell further comprises of a machined high steel beams having strain gauges secured thereto. The strain gauge comprises of electrical resistance elements sealed with sealant to prevent moisture or contaminant from disrupting strain measuring functions.

Steffens, Jr., et. al. uses position sensors (80, 84, 86) for sensing the position of occupants and weight sensor (70) for sensing weight. The clear differences in the technologies are the positions of the sensors and the complete disclosure of the type of weight sensors or sensors used. Tabe clearly discloses a load cell, a strain gauge, and structurally positioning these sensors on strategic locations that are not subjected to elastic behavior. The location of the seat position sensor 30, the seat back incline sensor 36, and the belt payout sensor 64 in Steffens, Jr., et. al. teaching for determining occupant's weight and position reflects the obvious maximum available knowledge at the time of the invention. However, these multiplicity of sensors to sense occupants weight is costly and unveils the fact that Steffens, Jr., et. al. had no prior advanced knowledge in the art to incorporate load cell on strategic mounting point and to configure the load cell with a strain gauge positioned strategically at a location where occupants actual weight are accurately measured without the addition of a seat back incline sensor 36 and the seatbelt payout sensor 64. Besides, occupants getting out of position have been corrected in a technology covered in patent number 6,728,616, which then out dates the teaching of out of position sensors in prior art, for controlling the deployment force of the airbag.

The teaching of the position sensor in the present invention is used to alert the driver of the vehicle regarding unsafe conditions resulting from occupant's unsafe body positions. The signal when this is detected is a verbal report and if the condition is not corrected, the sensor would rather enable communication that would initiate the disability of the vehicle until such behavior is corrected, but would not subject the occupant into a preset airbag deployment force or disable the airbag because of the occupant getting out of position.

Steffens, Jr., et. al. teaches a vent valve connected to a reaction can 103 of airbag102 and controlled by the controller 24. The controller as specified establishes the occupant weight range from the position sensors to select one of a plurality of discrete control zones dependent upon both the sensed occupant position range and the sensed occupant weight range. The controller then provides a regulatory signal to the vent valve 120 based on the selected one of the discrete control zone specified by a matrix.

Whereas, the teaching of the airbag system as prescribed in the prescribed in the present invention comprises the airbag system operatively connected to a deployment unit which comprises a combustion chamber connected to at least a canister of igniting gas. The airbag system further comprises a microprocessor connected to an accelerometer configured with a sliding pot and connected to a gas release valve relay and gas igniter. The release valve relay is communicates to a release valve responsive for releasing the igniting gas from the gas canister to the combustion chamber.

The microprocessor for the present invention is configured with the airbag system to receive the operating weight value from the CPU to deliver deployment signal corresponding to the operating weight value of the occupant to the accelerometer, which then translates the weight value to a proportionate electric current that energizes the crystals 64 in the accelerometer to such proportionality. The energy generated by the crystal is then converted into mechanical energy employed to displace a mass in the accelerometer to a distance D that is directly related to the occupant's weight. The mass intends, abut a spring which is correspondingly compressed by the displacement of the mass, an amount directly related to the distance D.

The spring compression for the present invention is directly related to the crystal energy which is directly related to the operating weight of the occupant on the seat. Accordingly, the compression of the spring is the culmination of translating the electrical energy of the current applied to the crystal into the mechanical energy applied to the sliding pot to adjust the opening in the combustion chamber for the gas to expand proportionately to the weight value, into the airbag when ignited. The canister microprocessor then utilizes this signal to communicate to the gas release valve relay, the specific volume of igniting gas to be released by the release valve into the combustion chamber.

The sliding pot for the present invention is calibrated such that the particular position of the sliding pot and the particular volume of gas released generate a specific deployment force and acceleration when the gas is ignited by an igniter, which receives signals from a collision sensor. Because each of the gas release valve relay and the accelerometer are operated according to signals corresponding to the operating weight value that is based on the weight of the occupant in the seat, the deployment force corresponds directly to the weight of the occupant in the seat in order to optimize the safety of the airbag deployment and reduce injuries to the occupants, as opposed to Steffens, Jr. et. al. that depends on a four matrix table configuration.

Steffens, Jr., et. al. teaches the steps of regulating occupants restraining functions of the occupant restraint system based on the selected control zone, which depends on the position sensor for sensing occupant's position relative to the airbag and the weight sensing means for the weight sensor. In this teaching, the regulating means vents off amounts of inflation fluid so as to regulate the restraining functions of the airbag during a crash in response to the regulating control signal. Statistically, the control means includes a look up memory table range. Whereas the present invention uses memories to monitor changing occupants and correcting new data when an occupant is replaced.

The present invention further uses collision sensors to signal the gas canister or igniter when the collision severity exceeds a predetermined speed and collision force thresholds for deployment of the airbag, so that such deployment depends on the collision severity. Data in the address line is erased by the erasable programmable read only memory "EPROM" each time an occupant is replaced. The EPROM then erases the data with new data every time an occupant leaves the seat and a new occupant takes the seat.

In Steffens, Jr., et. al. teaching, the controller analyzes the output signal from the accelerometer and determines if deployment crash conditions is occurring, in which a non deployment condition is one the seatbelt alone is sufficient to provide restraining functions for the occupant. However, the smart seatbelt control system as covered in patent number 6,728,616 prevents the vehicle from starting unless one or all occupants are wearing their seatbelts, there by keeping all occupants always in position to receive maximum benefits of the airbags, specifically the airbag of the instant invention. The smart seatbelt control system further would not allow the seatbelt to be disconnected in any way or form unless the engine is first turned off or through the use of an override switch.

The present invention further comprises a computerized system as opposed to a control block. The computerized system of the present invention intelligently controls the deployment force and acceleration used to inflate airbags, such that the rate corresponds to the weight of each seat occupied by an occupant. Accordingly, the deployment force for each airbag is determined proportionately based on the occupant's weight occupying the corresponding seat, as opposed to a table of matrix judging between weight ranges that would limit or over power the occupant on the occupying seat as thought by Steffens, Jr., et. al...

The strategic location of the weight sensing unit for the present invention, such as the load cell, which comprises of at least a strain gauge, are configured to sense a force from the seat, which could be inclined or set at 90 degree. In this regard, the strain caused by any applied force on any of the surfaces of the seat is measured by the gauge. Whereas Steffens, Jr., et. al. contemplates multiple sensors because at the time of their teaching, had no prior advanced analytical knowledge required to enable advance weight supplemental restraint computer system.

The present invention teaches a strain gauge for delivering direct electric line signal to the computerized system representing occupant's weight. Based on the line signal, the present invention identifies the particular seats in which the signal is received. Besides, the present invention comprises an address line for storing and identifying the weight measurement for each seat. The address line is accessed by a software program, which is configured with the CPU responsive for communicating to the airbag system, the operating weight value corresponding to the weight of the occupants on each seat in order to optimize the safety of airbag deployment and reduce injuries to the occupants.

Conclusively, the technologies involved in both inventions are distantly different, though both are directed towards solving a problem relating to airbag deployment. Clearly, the present invention teaches a variable deployment force airbag system as opposed to predetermined deployment force selected from a table of matrix as thought by Steffens, Jr., et. al.

The Examiner noted that non-elected claims had been presented. In response, Applicant has amended claim 65 that closely corresponds to the elected claim 34 before amendments made by Applicant. Applicant has also introduced new claims 66 through 101 that closely correspond to claims 35 through 64. Examination of claims 65 through 101 is now respectfully requested.

Applicant has included An RCE check of $395 to cover for any re-examination that the examiner may find necessary since the action was made final and the new amended claims requires the further examination

Further, Applicant has provided a substitute specification in clean form as well as marked up form. Applicant believes that the substitute specification introduces no new matter, and now provides the requisite Background and

Summary sections. Superfluous information about the CPU has been left in the specification because Applicant does not want the specification to ever be viewed as deficient, and would rather err on the side of caution if permitted by the Examiner.

Applicant has put the application in the form for immediate allowance. An RCE IS HEREBY requested if further examination is required.

Regards,

Joseph Akwo Tabe